

application. Thus the claim has been amended to include the V stage of the plant and claim 5 has been deleted.

The Examiner indicated in line 4 of Step (i) that the phrase herbicide effectively inhibits pollen in the claim is now clarified to indicate that what is being inhibited is the pollen that is not carrying the (R) gene. SO the Examiner's rejection under §112 is respectfully addressed. And the applicant requests that the Examiner reconsider and if appropriate remove the rejection. The applicant would also like to note to the Examiner that the statement at the top of page 4 is not accurate. The pollen production from a (Rr) plant is not a susceptible plant as the R is a dominant gene. The heterozygous plant would evidence herbicide resistance but its pollen would be (Rr).

The Examiner indicates that the word obtaining is indefinite. The applicant respectfully disagrees. The applicant does not have to isolate or identify the herbicide resistant progeny. There is only herbicide resistant progeny. This progeny may be RR or Rr depending on the female plant but the progeny is resistant, since the late application of the herbicide acted to remove the r component from the pollen

Claims 2 and 9 have been amended to clarify the claim. The Examiner's § 112 objection is respectfully requested to be removed.

The present remarks are addressed to the Examiner's § 112 objections on page 5 of the office action. In re Wands have eight considerations for determining whether is undue experimentation or not. The applicant respectfully denies that there is any undue experimentation to practice the present invention. The first factor is the quantity of experimentation necessary. This is very little. First there must be a plant that carries a dominant gene that resists a herbicide. There are all kinds of these plants. For example the ALS mutant gene in IT corn resists Pursuit herbicide. Next you must buy the herbicide then you must grow plants where some are heterozygous for the gene. Then you must apply the herbicide to the plant after the V5 stage. Next you must pollinate with pollen on susceptible plants and harvest the

seed. Then the seed must be planted and sprayed with the herbicide. If the plants live they are Rr and the method taught herein works. In fact confidential data from a mutant IT resistant plant which evidences that the method works with Lightening herbicide also can be provide to the Examiner if it is requested. This herbicide was taught as applicable on page 3 of the specification. The next factor in Wands is the amount of guidance given. The specification in the examples clearly lays out the basic fundamentals that the ordinary person in the art would understand. There are working examples in the specification and more can be provided with other herbicides and resistant genes if requested. The nature of the invention is practical and not high technology. The state of the prior art is that the ordinary skilled person in the art is aware of the genetics of dominant genes and use of herbicides is known. The relative skill in the art is the plant breeder. The predictability of the art is fairly certain when a dominant resistant gene is used with a herbicide. The breadth of the claims are in line with what is taught. Thus under the Wands factors there is not undue experimentation.

The applicant suggests that the true teaching of Dhingra is not that glyphosate is a gametocide but that related compounds could be used in this manner. The Examiner is making the teaching too difficult. The (Rr) plant has to be resistant to a herbicide, which would kill it but for the resistant gene and the resistance has to act in at least a semi-dominant fashion. Then the herbicide is applied. It should kill the (r) pollen so that the (R) is the only pollen that is capable of contributing to the breeding process. The herbicide itself does not have to have some special infinity for gamete death. It has to have the ability to kill cells including pollen that are not protected by the R herbicide resistant gene. Thus the applicant suggests that the claims are not too broadly written.

On page 7 of the office action the Examiner states that claims 1-11 and 21-23 are subject to an obvious rejection in light of Spencer and Dhingra. The applicant

submits that as amended the claims presently in the application are not obvious in light of the teaching of Spencer or Dhingra. The claims as amended are not made obvious by the art cited herein.

The Applicant hereby submits that Claim 1 as amended in the attached claims should overcome the Examiner's 35 U.S.C. § 103 rejection over Spencer, et al. The cited section of Spencer is from Column 6 of the patent 6,040,497 (hereinafter '497). Spencer teaches crossing a transgenic plant with a non-transgenic plant and spraying the progeny for herbicide resistance. The '497 patent does not teach nor suggest spraying the plant which is a heterozygous (rR) parent plant at any specific level or stage of growth so that pollen produced is only (R), which provides for progeny which is not segregating for ( rr ). The present method produces progeny which is herbicide resistance with Rr or RR and not substantially susceptible (rr). Spencer is spraying the progeny which if the method of the present invention is employed then the progeny does not have to be sprayed as the progeny is only resistant.

What is accomplished in the Spencer spraying is the death of susceptible plants, as the progeny will be segregating. In contrast the method of the present invention has substantially no susceptible plants in the progeny generation.

In contrast as taught in the present invention, and as is now claimed more clearly in Claim 1, the present invention involves spraying the progenitor plants so that the progeny are not segregating in expected ratios because the progenitor due to being sprayed after the 5 v stage preferentially has resultant pollen which carries the herbicide resistant gene. The segregation in the progeny (if any) shown in the present invention is preferentially resistant. The prior art simply identifies that the progeny will segregate for resistance and susceptibility to the herbicide.


This concept that progeny have no susceptibility to the herbicide because the parent pollen was sprayed at the late vegetative stage is not taught nor suggested by the prior art.

This present invention is not shown or suggested by the prior art.

Therefore the claims as amended are believed to be in allowable form. The Applicant requests that notice of allowance be kindly reconsidered as to the amended claims.

If this response is not in full compliance with the new amendments to the code the Applicant requests that the Examiner notify the Applicant as soon as possible so that compliance can be achieved in a timely manner.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Dana Rewoldt", written over a horizontal line.

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CERTIFICATE OF MAILING UNDER 37 C.F.R. 1.8

I hereby certify that the foregoing 5 page Amendment with both an unmarked and marked set of claims and a postcard are being mailed to the Assistant Commissioner of Patents and Trademarks, Washington, DC 20231, on Dec.26, 2002.

  
DANA REWOLDT

1. (Four times amended) A method of producing plant progeny as seeds and optionally as plants which shows herbicide resistance, to a herbicide said method comprising:

(i) applying said herbicide to a population of progenitor plants, at least some of said progenitor plants being heterozygous (Rr) wherein the R is the herbicide resistant gene and the r is not evidencing the herbicide resistant gene [in which pollen evidences segregation for a herbicide resistant gene], such application being at least after the V5 stage which is an advanced vegetative state before flowering; wherein the applied herbicide effectively inhibits pollen production which does not carry the herbicide resistant gene (R) whereby the resultant pollen is preferentially carrying the herbicide resistant gene (R); such that resultant pollen from said plants fertilize the female plants which are selected from a group consisting of plants which are: homozygous (RR), heterozygous (Rr) for the Glyphosate resistance gene wherein the plant is resistant to the herbicide, susceptible to the herbicide (rr), and a mixture of two or more to these (RR), (Rr), (rr) types of plants;

(ii) obtaining preferentially herbicide resistant plant progeny wherein the plant progeny is carrying the herbicide resistance gene (RR) or (Rr) therefrom as seeds and optionally as plants.

2. (once amended) The method according to claim 1 wherein the herbicide resistant plants are glyphosate resistant, and the herbicide applied in step (i) is glyphosate.

3. (once amended) The method according to claim 1 wherein the plants comprise crop plants.

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4. (once amended) The method according to claim 3 wherein the crop plants comprise corn.

5. deleted

6. (once amended) The method according to claim 1 wherein the progeny comprise herbicide resistant hybrid seed.

7. (once amended) The method according claim 1 wherein the plants contain a further desired transgene.

8. (once amended) The method according to claim 7 wherein the further transgene is a gene which encodes a quality trait which is deliverable by a pollinator.

p2

9. (once amended) The method according to claim 8 wherein the quality trait comprises high oil.

10. (once amended) The method according to claim 7 wherein the transgene is a fertility/sterility controlling gene.

11. (once amended) The method according to claim 10 wherein said fertility/sterility controlling gene is a male sterility gene.

21. (once amended) The method according to claim 1 wherein said progeny comprise seed.

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22. (once amended) The method according to claim 1 wherein said progeny comprise inbred seed.

D3  
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23.

(once amended) The method according to claim 2 wherein said progeny comprise glyphosate resistant hybrid seed.

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1. (Four times amended) A method of producing [a transgenic] plant progeny as seeds and optionally as plants which shows herbicide resistance, to a herbicide said method comprising:

(i) applying said herbicide to a population of progenitor plants, at least some of said progenitor plants being heterozygous (Rr) wherein the R is the herbicide resistant gene and the r is not evidencing the herbicide resistant gene [in which pollen evidences segregation for a herbicide resistant gene], such application being at least after the V5 stage which is an advanced vegetative state before flowering; wherein the applied herbicide effectively inhibits pollen production which does not [carrier] carry the herbicide resistant gene (R) whereby the resultant pollen is preferentially carrying the herbicide resistant gene (R); such that resultant pollen from said plants fertilize the female plants which are selected from a group consisting of plants which are: homozygous (RR), heterozygous (Rr) for the Glyphosate resistance gene wherein the plant is resistant to the herbicide, susceptible to the herbicide (rr), and a mixture of two or more to these (RR), (Rr), (rr) types of plants;

(ii) obtaining preferentially herbicide [resistance]resistant plant progeny wherein the plant progeny is carrying the herbicide resistance gene (RR) or (Rr) therefrom as seeds and optionally as plants.

2. (once amended) The [A] method according to claim 1 wherein the herbicide resistant plants are glyphosate resistant, and the herbicide applied in [stage] step (i) is glyphosate.

3. (once amended) The [A] method according to claim 1 wherein the plants comprise crop plants.

4. (once amended) The [A] method according to claim 3 wherein the crop plants comprise corn.
5. (deleted) [A method according to claim 4 wherein in step (i), the herbicide is applied at the V5 stage of growth or later.]
6. (once amended) The [A] method according to claim 1 wherein the progeny comprise herbicide resistant hybrid seed.
7. (once amended) The [A] method according claim 1 wherein the plants contain a further desired transgene.
8. (once amended) The [A] method according to claim 7 wherein the further transgene is a gene which encodes a quality trait which is deliverable by a pollinator.
9. (once amended) The [A] method according to claim 8 wherein the quality trait comprises [a] high oil [system].
10. (once amended) The [A] method according to claim 7 wherein the transgene is a fertility/sterility controlling gene.
11. (once amended) The [A] method according to claim 10 wherein said fertility/sterility controlling gene is a male sterility gene.
21. (once amended) The [A] method according to claim 1 wherein said progeny comprise seed.
22. (once amended) The [A] method according to claim 1 wherein said progeny comprise inbred seed.

23. (once amended) The [A] method according to claim 2 wherein said progeny comprise glyphosate resistant hybrid seed.